

REMARKS

Applicants respectfully request further examination and reconsideration in view of the above amendments and arguments set forth fully below. Claims 1-7 were previously pending in the present application. Within the Office Action, Claims 1-3, 5, and 6 were rejected, Claim 4 was objected to and Claim 7 was allowed. The Applicant is currently amending Claims 2 and 5-6, cancelling Claims 1 and 4, and adding new Claims 8-13.

Claim Objections

Within the Office Action, Claim 4 was objected as being dependent upon a rejected base claim. Applicant cancels Claim 4 herewith, thereby rendering the Examiner's rejection thereof moot.

Claim Rejections under 35 U.S.C. § 103

Also within the Office Action, Claims 1-3 and 5-6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over JP 44-14970 in view of United States Patent No. 6,563,306 to Sato (hereinafter referred to as "Sato") or over United States patent application no. 2004/0075426 to Wakiyama et al. (hereinafter referred to as "Wakiyama") in view of United States Patent No. 4,970,463 to Wolf et al. (hereinafter referred to as "Wolf").

To establish a *prima facie* case of obviousness of a claimed invention, all the claimed features must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). The Applicants respectfully traverse this rejection, because none of the prior art references disclose all of the limitations of Claims 1-3 and 5-6.

Specifically none of the prior art references teach or suggest a "a supporting member for supporting the first magnet and a second magnet which is different from said first magnet, wherein said supporting member has a first end

connected to the first magnet and a second end connected to the second magnet, and wherein the second magnet is located near a displacement path of the magnetic material.”

Indeed, the Examiner has identified the above-mentioned subject matter allowable. Claim 7 includes this subject matter explicitly and Claims 2-3 and 5-6 include the limitation by reference to Claim 7. For at least this reason the Applicant respectfully request that the Examiner remove his rejection under 35 U.S.C. § 103.

Allowable Subject Matter

The Applicants thank the Examiner for identifying that Claim 7 is allowable.

New Claims

The Applicants add Claims 8-13 herewith. New Claims 8-13 are also allowable over a hypothetical combination of JP 44-14970 and Sato or Wakiyama and Wolf for the reasons stated herein.

According to the new Claim 8, the Hall device has an operating point corresponding to a given magnetic force (e.g. 25 Gauss of isomagnetic plane 12c in Fig. 2A and 2B). The Hall device is arranged that when the magnetic field force at the operating point is more than the given magnetic field (e.g. 25 Gauss), the Hall device is on-state, while when such magnetic field force is smaller than the given magnetic field, the Hall device is off-state. The isomagnetic plane (12c) of the given magnetic force (25 Gauss) of the magnet pole is above the operating point (14a) in Fig. 2A, and it is below in Fig. 2B. Therefore, when the magnet 12 is displaced so that the isomagnetic plane (12c) crosses the operating point (14a), the on/off state of the Hall device 14 is reversed as shown in Fig. 2A and 2B.

The Examiner alleges "The on-off state is nothing but the properties of the combination of the magnet and Hall element device." in page 3 of the Office Action, and this is shown in Wakiyama and Wolf. It should be noted that the present invention is not a mere combination the magnet and Hall element device, but it utilizes our findings that the on/off state of the Hall greatly changes when the isomagnetic plane of the given magnetic force of the magnet pole crosses the operating point. This enables to detect the minute displacement of the magnet material. Those are neither shown in Wakiyama nor Wolf.

On the other hand, Sato discloses an apparatus for detecting the displacement of a magnet using a Hall device. However, Sato employs a plurality of Hall devices to solve a problem of a conventional apparatus comprising only one Hall device that the detectable range of the relative position between the device and the magnet is remained very small.

The Examiner alleges that in Sato the boundary of the magnet poles crosses the operating point as shown in Fig. 2. However, it is incorrect, because Fig. 2 shows only the relation between displacement of the magnet and the Hall device and output voltage. It does neither show the operating point of the Hall device, nor that the on/off state of the Hall greatly changes when the isomagnetic plane of the given magnetic force of the magnet pole crosses the operating point.

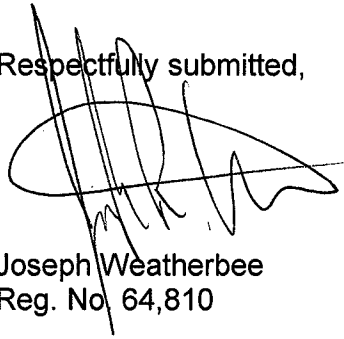
For at least these reasons, Claims 8-13 are allowable over a hypothetical combination of JP 44-14970 and Sato or Wakiyama and Wolf

Conclusion

In view of the foregoing, the application is considered to be in allowable condition. Applicant respectfully requests that the Examiner withdraw his objections and rejections and allow the application to issue as a U.S. Letters Patent.

Should the Examiner deem it helpful, he is encouraged to contact Applicant's attorney, at 650-474-8400.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Joseph Weatherbee', is written over the typed name and registration number.

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